Summary of Breast Index

if you found it useful kindly share!

Breast Cancer

Rare Types:
- Paget's Ds.
- Inflam. carcinoma.

Etiology

Genetic

Mutation in tumor suppressor gene

1) BRCA1 on Ch. 17.
2) BRCA2 on Ch. 13.
3) TP53 on Ch. 17.

Un-opposed (E)

1) Early menarche.
2) late menopause.
3) Null para / non-lactating.
4) OCPs > 10 ys.
5) Obesity & White race.

High risk

1) hx. of cancer in 1breast or +ve FH.
2) Pre-maliq.: Fibro-adenosis e papillomatosis.
& Atypical deuctal hyperplasia.

Path.

Ductal (80%)

"Large – Intermediate"

Non-invasive (DCIS)

Turns to Invasive after 2ys.

Invasive

- NOS
- Medullary.
- Mucinous.

Lobular (10 -15%)

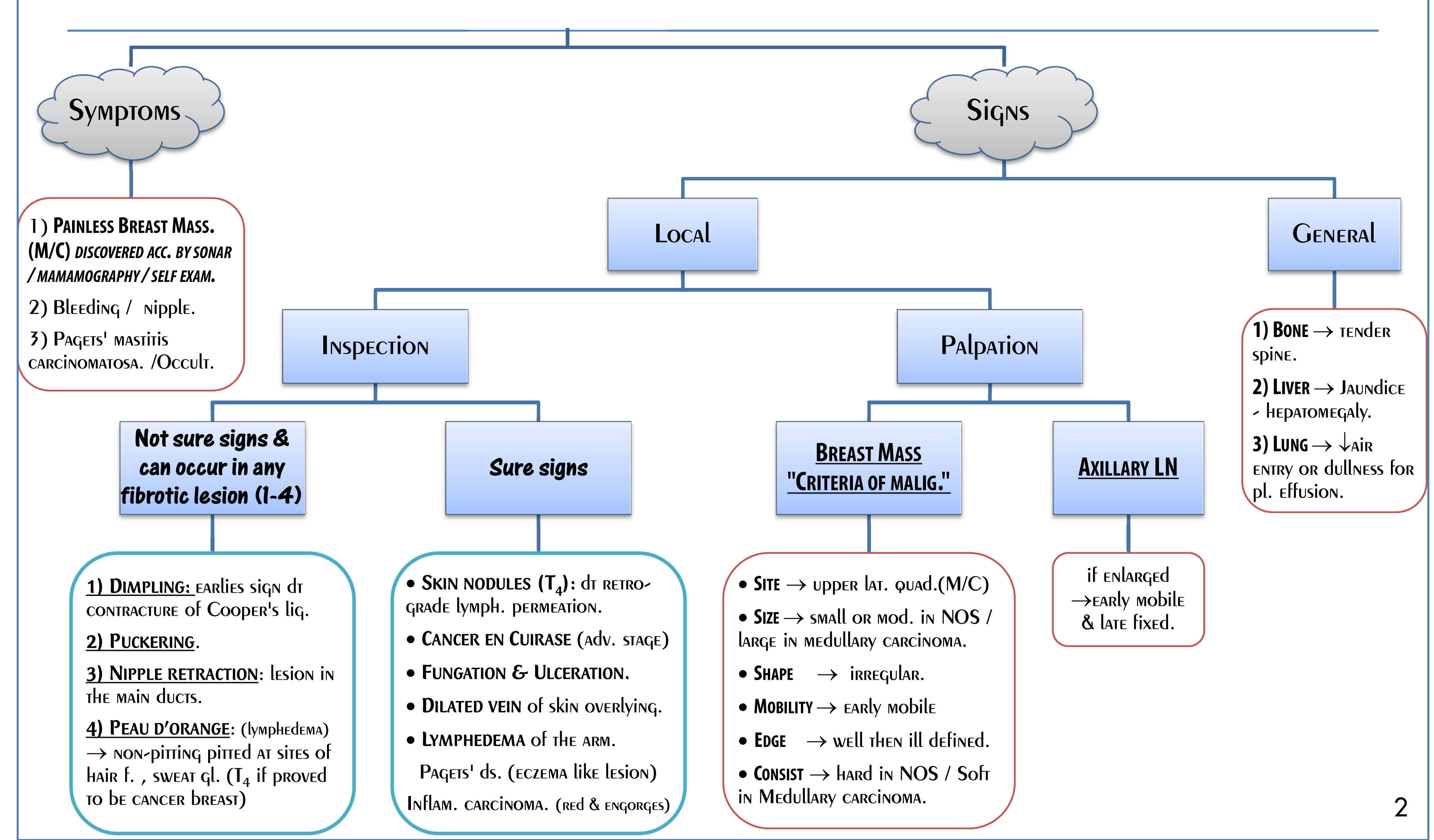
"Terminal – Acini"

Non-invasive (LCIS)

- Bilateral - multi-centeric. → # of Conserv. Breast surgery.
- Discovered acc. on biopsy.
- No μ calcifications.
- Turns to Invasive Ductal Carcinoma iq. after 15 ys.

	NOS	Medullary "Encephaloid"	Mucinous (Colloid)
%	75%	5%	1%
NE	Small, irregular & Hard.	Large, irregular & Soft. "Brain like"	Large & cystic.
CS	• Extensive fibrous t. → Gritty. • Concave. "retract" • Non-capsulated + HNC.	• Highly cellular → Soft. • Convex. "bulgined" • Non-capsulated + HNC.	Honey comb app.
Micro	• Maliq. spheroidal cells • irreq. arranged.	• Maliq. spheroidal cells. • pseudo-acinus -no fibrous tissue • highly vascular + lymphocytic infilt.	• Maliq. cells. • producing mucin → Signet ring app.
Prog.	Bad	Good	Good unlike the GIT

C/P of Breast Cancer



Types & Spread & Staging



1) Direct → to skin, pectoral ms. fascia, Serratus ant. & chest wall.

2) Blood → LL BB RR = Osteolytic bone 2ries to lumbar vertebrae. "Its a Systemic ds. dt early bl. spread by μ metasasis to the ax. LNs"

3) Transcoelemic: dt retrograde lymph. permeation:

a) Ovaries → Krukenberg's tumor

b) Nodules in DP → plummer's shelf nodules.

4) Lymphatic → by Embolization & permeation.

Apical LNs.

Pectoral LNs.
↓
Central LN
↓
Apical LN

Int. mammary LN on both sides

Mediastinal LNs

reach lymph. tof rectus sheath

lymph. in falciform lig. ↓ **Porta hepatis & Liver**

to umbilicus ↓ **Sister Joseph nodules of Mayo-Clinic**

Staging "TNM Classif."

- Tis: DCIS or LCIS.
- T1: < 2cm.
- T2: 2 - 5 sm.
- T3: > 5cm or fixed to pectoral ms.
- T4: any size + direct extention to Chest wall, skin or Inflam. carcinoma

- N0: No LN metastasis.
- N1: Ipsilat. mobile axillary LN.
- N2: Ipsilat. fixed axillary LN.
- N3: Supra-clav. & int. mammary LN.
- M0 : no metastasis.
- M1: Dx. metatsasis.

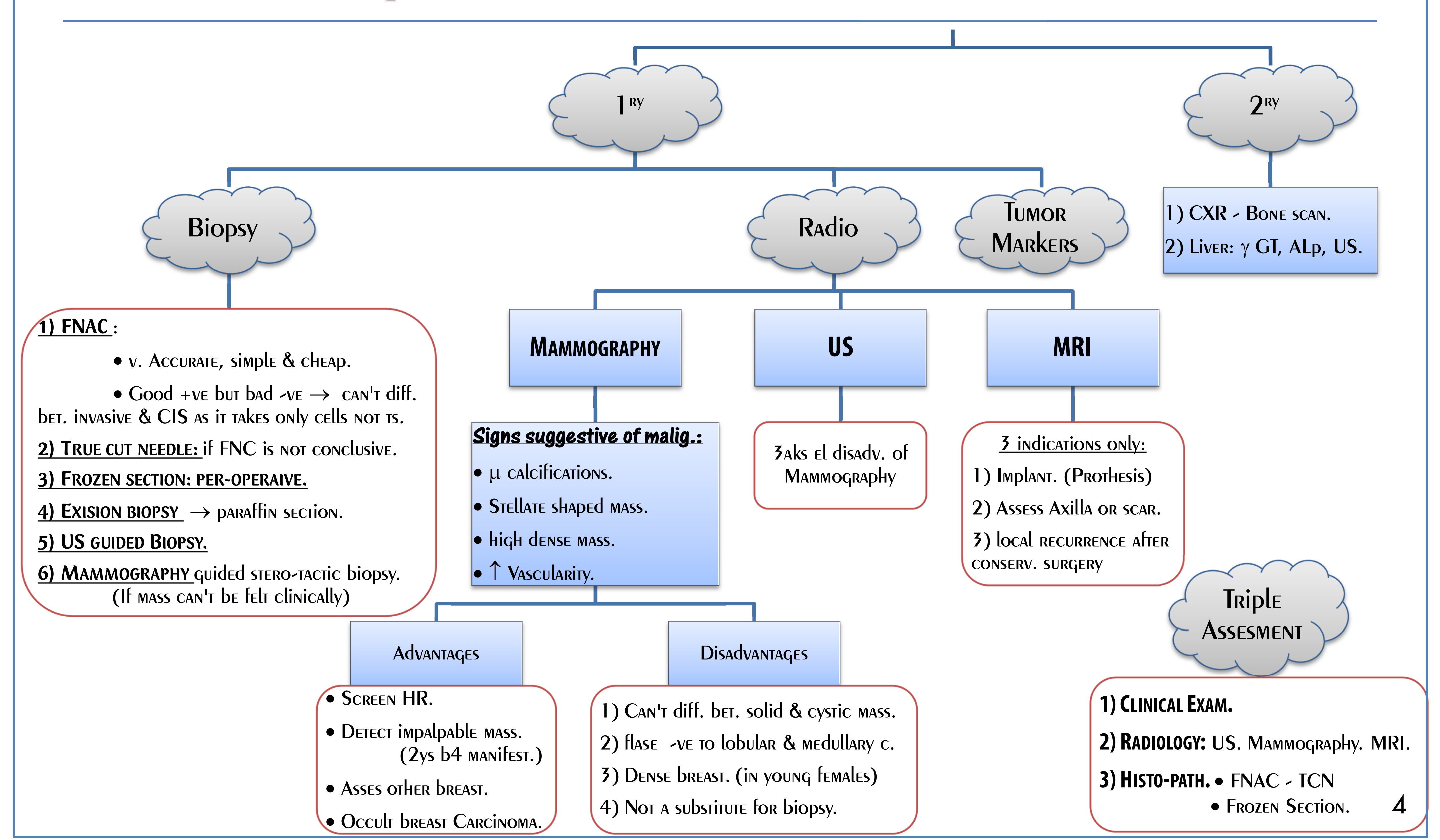
Paget's ds. of Nipple (rare = 1%)

- **Path.** Uni-lateral slowly growing intra-ductal carcinoma begins. (major collecting ducts)
- **MIC** → Epidermal hyperplasia + Paget's cell (large – multi-nucleated vacuolated cells), lymph. infilt.
- **Cl./P:** Pricking sensation of nipple & areola → erosions & ulceration.
- Later → spreads in wards → mass after 2 ys.
- **DD** → (Eczema like **but no discharge**)
- **TTT** → MRM. (radio-resistant)

Inflammatory Carcinoma

- Occurs in preg. & lactation. dt ↑H.
- **Skin is RHTS in >1/3 of the breast.**
- Rapidly metastasize → Stage IV.
- V. Bad prognosis → pt. dies in few ms.
- DD → Acute lactating mastitis.

Investigations for breast cancer



Treatment modalities

*Surgery &Radio for **local control!***
*Chemo & hormonal for **metastasis!***

1 Surgery

Stage I & II

MRM + Reconstructive

- Remove Breast + Axilla!
- Indications = # of Conserv.
- **Reconstruction:**

1) Si gel imp[lants.
2) Expandible saline prothesis.
3) **MC Flap:**
- LD flap. (latismus dorsi)
- TRAM flap. (Transv. Rectus Abdominus ms.)

4) Mamoplasty of the other breast to achive symetry

Conservative "Main Line of TTT."

QuART or TART

- Quaderectomy.
- Axillary clearance.
- RT to the tumor bed.

Tumor excision ē SM 2 cm.

Absolute #

1) lobular carcinoma. "multi-centeric"
2) DCIS ē extensive insitu comp.
3) Grade III "poor diff."
4) Skin ds.
5) Preg. in the 1st trimster

Relative #

Bad cosmetic disfig.

1) Small breast.
2) Large tumor > 5cm.
3) affecting nipple or areola.

Stage III & IV

Palliative simple mastetctomy (Remove Breast only)

2 Radio

"For Local control"

post- op. II, III

on LN → Int. mamary & Supra-clav. LN

3 Chemo

"For μ Metastasis"

post op. Stage II, III, IV

6 courses for 6 ms.

1) CMF regimn.
2) Adriamycin alone.
3) CAF if aggressive. (given in 4 courses)

4 Hormonal (ER / PR)

pre-menopausal

(E) from Ovary

1) Tamoxifen. (not suff. alone)
2) Oophrectomy:
- Radio / Chemo / Surgical.
- Medical "reversible" by LHRH in cont. manner.

3) Progestins if PR +ve.

post-menopausal

(E) from Adrenal

1) Tamoxifen. (20 mg /d for 5 ys.)
2) Aromatase (-)

Molecular (Her-2 Rs)

= EGF = aggressive

→ herceptin (MCA) + CAF

Treatment & follow up

	Early (curable)		Late (non- curable) / Inoperable / Advanced	
	Stage I	**Stage II**	**Stage III**	**Stage IV**
Staging	$T_1 N_0 M_0$ و بس (Tumor < 2 cm)	• $T_1 N_1 M_0$ • $T_2 N_0 M_0$ • $T_2 N_1 M_0$ • $T_3 N_0 M_0$ **Should be M_0** LN is Ipsilat. & mobile **Tumor max. 5 cm** except $T_3 N_0 M_0$	(Locally Advanced) • T_3 or T_4 • $N_2 - N_3$ • **but M_0**	• Any T or N + **M_1** Distant metastasis (blood & lymphatic)
1) Surgery	1) MRM + Reconstructive. 2) Conservative unless it is #.	1) MRM + Reconstructive. 2) Conservative.	Palliative **Simple** mastectomy.	**As Stage III + TTT. of metastasis** 1) **Path. Fracture** → Radio + ORIF. 2) **Liver** → Chemo-th. 3) **Lung "Pl. effusion":** • IC tube. • Chemo-therapy. • Bleomycin → pleurodesis.
2) Radio-th.	No post-op RT. (no LN++)	✓ on Supra-clav. & int. mammary LN.	Palliative on int. mammary, Supra-clav. & Axilla.	
3) Chemo-th.	No post-op Chemo except If > 1 cm. (no metastasis)	✓ dt LN metastasis.	Palliative.	
4) Hormonal acc. to the receptors	✓ Tamoxifen is given in ER +ve or –ve (20 mg/day for 5 ys) in pre or post-menop. to ↓ risk of other breast.	✓	Palliative.	
Follow up	• Every 3ms for the 1st 2 ys. • 4 ms – next 3 ys. • Yearly for life. • Mammography for the other breast yearly.	**Sentinel LNs in stage I only??!**		

Acute lactational Mastitis

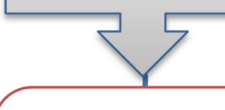
Etiology

- CA: Staph. Aureus. (Coagulase +ve)
- PDF:

1) milk engorgement + epith. devris blocking the ducts.
2) Nipple Abrasions dt Suckling.
3) Bad hygeine & GC.

Cl./P

Stage of Milk Engorgement



- low grade fever.
- Dull ache pain.
- Engorged & tender but no signs of inflam.

Stage of Mastitis

- Same but worse
- Signs of Inflam. (RHTS)
- Axillary LN ++, firm & tender.
- DD = Mastitis Carcinomatosa.

Anti-Staph. IV Augmentin (1 gm / 8hrs)
Evacutae the inflamed breast by squeexing & breast pump.

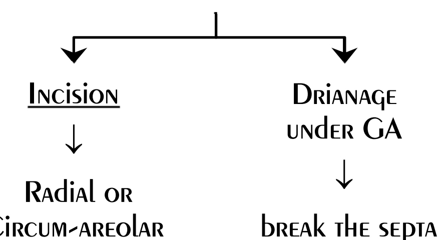
- If baby > 9 ms. → Weaning + Bromocriptine.
- If nursed < 9ms. → feeding withthe healthy breast.

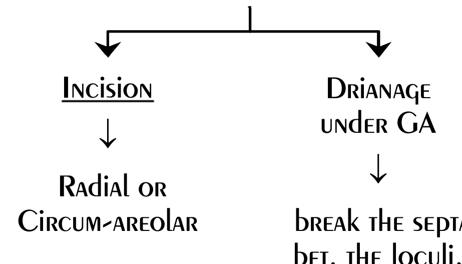
Stage of Acute Breast Abscess

- Throbbing pain + Purulent Discharge.
- hectic fever.
- Overlying skin edema.
- **Don't wait for fluctuation.**

↓

Abscess Formation
(If no improv. > 48 hrs.)





- Incision → Radial or Circum-areolar
- Drianage under GA → break the septa bet. the loculi.

Stage of Chronic Breast Abscess

Etiology:
- Prolonged ABS.
- Incomplete drainage by small incision.

C/P:
- Pain. (Tense cystic)
- Nipple discharge!

Invest.: Triple ass..

TTT.: Excision + Biopsy.

Differential Diagnosis

	Acute Mastitis	Inflam. Carcinomatosa
General	FAHM	Anorexia, loss of wt.
Local	Acute onset & Rapidly prg.	Gradual onset & slowly prog.
Signs		
General	Higher fever	Low fever, Cachexia
Local	Mild edema	Marked edema
Signs of inflame.	+ve	-ve
Axillary LNs	Enlarged, tender. Firm & mobile	Enlarged, non-tender, hard & fixed.

	Fibro-Cystic Disease "Chr. Interstitial Mastitis"	Duct Papilloma	Fibro-Adenoma Hard (Peri-canalicular)	Fibro-Adenoma Soft (Intra-canalicular)
Etio.	Un-known: ANDI = Aberrations of Normal Development & Involution dt abnormal response to (E) each menstrual cycle.	1) Benign tumor arising from <u>major</u> ducts. 2) Localized papillomotosis of an ANDI.	1) Benign tumor arising from <u>fibrous & glandular</u> element. 2) Localized fibrosis & adenosis of an ANDI.	
Path.	• Adeniosis. • Fibrosis. • Epitheliosis. (If extensive = papillomatosis) • <u>Cysts:</u> a) **Micro**. (degeneration of the acini) b) **Macro** → retention cyst *dt ductal obst. by fibrosis or epitheliosis. (Blue domed cyst Blood good)*	Vascular CT core covered by hyperplastic columnar epith. Diffuse papillomatosis is pre-malignant!	• Fibrous > Glandular element. • Small & hard.	• Glandular > fibrous element. • Large & soft. **<u>Clinical Variants of Soft adenoma:</u>** • Giant FA → during puberty. • <u>Cysto-sarcoma phylloides</u>: *Benign tumor++ (5% malig.) → compress skin bl. supply → ulceration → probe to diff. it from fungating carcinoma*
Sympt.	**<u>Mainly Asymptomatic:</u>** 1) Cyclic mastalgia. 2) Nipple discharge. (clear / greenish) 3) Breast lump. (macro cyst or extensive fibrosis → sclerosing adenosis)	1) Bl. / nipple. (M/C cause) may be serous. 2) <u>Retro-areolar ret. cysts</u> dt obst. of the ducts. (never mass)	• 20-30 ys. • More common.	• 30 – 50 ys. • Painless lump acc. discovered.
Signs	1) Tender breast. 2) Tender nodularity, felt by tips of fingers. 3) Breast lump.	Circumferential pressure (squeezing) → bleeding from single duct.	**Size**: Small mass **Shape**: Spherical **Surface**: Smooth **Mobility**: (breast mouse) **Consist.**: Firm	Large mass Spherical Lobulated Mobile Soft } No axillary LN ++
Invest.	1) Discharge → benzidine test (occult bl.) 2) Cyst → aspiration. (Criteria of benign) 3) Triple assessment.	1) Ductography → regular filling defect. 2) Discharge=+ve benzidine test / Cytology. 3) Triple assessment. (to exclude malig.)	Clinically diagnosed + Triple assessment.	Triple assessment **DD = Medullary carcinoma & Sracoma**
	1) **<u>Cyclic Mastalgia → "Reassurance"</u>** • Tight brassiere at day time & soft at night. • Primaleve. (capsules of primrose oil) • If intractable → Bromocriptine & Tamoxifen. 2) **<u>Discharge</u>** <u>→ follow up.</u> 3) **<u>Cyst</u>** → aspiration but if recurrent → excision.	µ-dochectomy + Biopsy.	<u>Excision + Biopsy</u> (Circum-areolar incision)	1) **<u>Soft FA</u>** <u>→ Excision + Biopsy.</u> *(circum-areolar incision)* 2) **<u>Giant FA</u>** → wide local excision + biopsy. ***(sub-mammary incision)*** 3) **<u>Cysto-sarcoma phylloids</u>** → if hu = simple mastectomy.

MISCELLANEOUS

	Mammary Duct Ectasia (Plasma cell Mastitis)	Sarcoma of the Breast
Etiology	Un-known: but more in smokers + mild anaerobic infection.	1) Soft fibro-adenoma. (intra-canalicular) 2) Mmediastinal irradiation for lymphoma.
Path.	• Dilatation of the major ducts below areola stasis → greenish plataceous creamy discharge + periductal plasma cell infiltration.	• **Mac** → large soft tumor dt high vascularity. (Cystic dege. + Areas of HNC) • **Mic** → Spindle cell sarcoma. • **Spread** → blood.
Cl./P	1) Nipple discharge (M/c cause) → creamy greenish plataceous 2) Breast lump → hard ± skin dimpleing & nipple retraction simulating breast carcinoma. 3) Pain dt acute inflam.	• **30 – 40 ys.** • **Large Breast mass.**
DD	Breast carcinoma.	Medullry breast carcinoma.
Invest.	Triple assessment.	Triple assessment. (no μ calcification)
TTT.	Major Duct Excision "Macro- dochectomy" + Biopsy "via circum-areolar incision"	Simple mastectomy followed by radiotherapy.

Diseases of the male Breast! (MCQ) **(p. 32)**